Vol. IX JANUARY 1951 No. 1

THE HEALTH EDUCATION JOURNAL

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The
HEALTH EDUCATION
JOURNAL
A Quarterly for all who are interested in Health

VOL. IX JANUARY 1951 No. 1

CASUALTIES OF FAMILY LIFE

DELINQUENTS are the emotional casualties of insecure family life. The delinquent act is a desperate attempt to escape from a long-standing family situation that has become intolerable. Outside influences like the cinema or bad company are not responsible for it: they merely decide what form it will take. These are the conclusions suggested by Stott's important study of delinquent youths.[1]

Much the same could be said of the younger children who fill our child guidance clinics. They too are victims of an unhealthy emotional climate in their homes. And their neurotic behaviour is an equally poignant reaction to circumstances that make balanced development difficult if not impossible.

In both cases disease-creating anxiety centres on the parents. Because of their own inadequacies they spread maladjustment throughout their family like a blight. In short, neurosis is contagious to those in long-continued and intimate contact with it. As in infection generally, the result in any given case depends on innate constitution, the strength of the infection and the duration of exposure. Exposure early in life does not bring immunity, however; instead it predisposes to a more marked, allergic reaction.

The delinquent youth and the problem child are, so to speak, the notifiable cases of this family infection. For every one of these there are several, and perhaps many, who escape official notice, but are permanently damaged and become carriers.

As we did in physical disease, we are at present concentrating on treating the established case, and on symptoms rather than on root causes. Our problem cannot be solved by these means. There are not, and never will be, enough child guidance clinics and homes for delinquents to do it. And in any case, by the time the child reaches them the damage is generally irreparable. There is therefore an urgent need for a preventive approach based on thorough epidemiological studies. Study of the overt will teach us much about the less obvious abnormalities. We shall undoubtedly find that health education has an important part to play.

[1]D. H. Stott: *Delinquency and Human Nature*, Carnegie United Kingdom Trust, 1950. (See also *H.E.J.*, pp. 19 and 46.)

Hlth. Educ. J., 1951, 9, 2—5

THE PROBLEM OF FOOT HEALTH

By JOHN H. HANBY, *F.Ch.S., Consulting Chiropodist to Guy's Hospital and the London Foot Hospital.*

NOBODY knows positively the incidence of foot disorders among the general public. It is true that small-scale investigations have taken place among sections of the population including children, service personnel and the aged. But these give an incomplete picture, for the incidence is probably at its maximum in the 40–60 age group, which has not been examined. We know, however, that the deformity or distortion of the big toe (hallux valgus, known to the lay mind as a bunion) occurs in about half the school children of 14 to 17 years of age ; and we can therefore safely assume that even more of the population as a whole suffer from this condition. If we add to that all the other disorders of the foot, we can be certain that a major problem exists. The baby's foot is a lovely thing which is rarely deformed at birth. It is indeed deplorable that the adult foot should deteriorate to such an extent.

Influence of Posture

Foot health is closely related to posture. Since our feet are interposed between our weight and the ground, every deflection of the body modifies the distribution of weight. So if strain is to be avoided, the body must be poised comfortably over the feet. The acquisition of good posture should therefore come before all other considerations and should be the fundamental basis of all foot education. If we ignore this we are merely treating symptoms. To have good posture the body must be sufficiently strong and healthy to maintain it. So good posture demands good health.

Foot Health in Childhood

In childhood, foot troubles often start early, become progressively more evident during the growing period and are usually unaccompanied by pain. We find hallux valgus quite early in life, and corns are present in 15 per cent. of schoolgirls in the 7–10 years of age group and in 37 per cent. of 15-year-olds. What distortions or wrong working of the foot are responsible for this high incidence ? How far are shoes the cause of

trouble ? Shoes can and do force the foot out of shape, but an already malfunctioning foot can prevent what would otherwise be a sound shoe from fitting well. These figures refer to girls ; but we must not assume that feminine vanity is the sole reason. Prior to the last war it was thought that tight calf muscles were almost entirely found in the female and that they were caused by high heels. The examination of many men with bad feet in the Forces revealed that this defect was also surprisingly common in men, where the influence of the heel is negligible.

Since defects are found so early in life in both sexes, they must be caused by either congenital deformities or peculiarities in growth. Unfortunately little is known about how these conditions arise, and much more research is needed. How far do nutritional deficiencies in children affect the legs and feet ? Is it true that the lower the social status the greater is the incidence of foot trouble ? It appears to be so in the adult. Might it also be so in the child ? No one knows at present. And what of the effects of infectious diseases ? There is a strong probability, based on clinical evidence, that muscular imbalance can arise from what are regarded as quite minor febrile complaints. This again is a field for research, for it is quite common to find children who are not capable of using their toes properly and in consequence will inevitably have increasing foot trouble for the rest of their lives.

The Non-Average Foot

In these days of mass production, shoes must be designed for the average. Surveys show, however, that many children's feet do not conform to the general pattern. So a non-average foot must suffer from some degree of ill fitting. The more enlightened manufacturers have tried to overcome this difficulty. But good shoes are more expensive than shoddy ones, and are therefore not available for the lower income groups. And there are many feet which can never be fitted without recourse to specially made shoes. A normal child outgrows shoes very rapidly. Some parents can change them as frequently as required ; others for financial reasons cannot : hence the harmful system of passing an older child's shoes down to the next. If the discrepancy in contour is not too great a strong foot may suffer little by this process of family economy, but for the weaker foot the effect may be disastrous. We really need a new method of manufacture with the use of alternative materials, so that children's shoes may be produced at a very much lower price than at present, even though it means a lessening of that degree of solidity to which we are accustomed. Children's shoes, even many of the ' good ' ones, are still made far too heavy and unyielding. In many cases it is difficult to bend the sole of a new shoe. The harmful effect on the not too strong foot can be imagined.

Socks and Stockings

Socks and stockings are equally responsible for a great deal of foot discomfort and, in the weak foot of the young child, for the actual production of functional deformities. Children's socks are usually made with the greatest length in the middle of the foot, whereas the longest part should be on the medial side to allow extra room for the great toe and second toe. This would mean making socks in lefts and rights, instead of two identical socks making a pair. Usually the yarn from which they are woven is shrinkable and many tiny children have forced upon them socks that are not only a different shape from their feet, but too small in every dimension. This has disastrous effects on easily malleable feet. Even in the adult foot, the fit of the stocking is quite as important as that of the shoe, a point which is frequently overlooked.

Anatomical Defects

Thirty to forty years ago, bowing of the legs from rickets was common. Now it is practically non-existent in the form in which we knew it. Nowadays, however, we often see a bowing of the leg from the knee downwards in otherwise healthy children. The condition does not appear until the later school years. A result of this apparent peculiarity in growth is that the foot for the remainder of life cannot sit squarely under the leg ; and since the foot must keep in contact with the ground it becomes strained towards its inner side. Thus the leg conditions the foot. This underlines the complexity of foot disorders. In surveys there is a tendency to over-simplify the categories of complaints, investigations being confined in the main to ' flat foot ' (a term nowadays much disputed), bunions and corns. A much wider field must be covered and investigations should be organised to discover the causes which underlie this great amount of deformity. Until this is done, treatment in the majority of cases can only be palliative.

Are Our Services Adequate ?

Much can be done, however, to relieve pain in spite of our lack of knowledge of fundamental causes. Some organisation is already in existence but the necessity for expanding these services is becoming increasingly apparent. Those who have been specially trained in the examination and treatment of feet should be employed to a greater extent. There are at present too many who, though efficient in the care of children in other fields, are not qualified to examine their feet. There is a great danger here, for the growing child does not normally experience pain and it needs the expert to recognise early signs. For the adult there is need for an increase in treatment facilities. If one views the adult problem in its broadest perspective, however, it is to be doubted whether

the existing clinic, hospital and private services will be enough to satisfy the requirements of the whole population. If all those in pain claimed relief as a right, the services we now have would not be equal to the task.

Co-operation between all interested in foot health should be encouraged to the fullest extent. A team of orthopaedic surgeons, school medical officers, chiropodists and shoe and textile manufacturers should be formed to suggest policy. And since we must not deny young girls their natural right to be attractive we must add designers to this team. If there is direct conflict between health and attractiveness, we know which will be jettisoned.

It has been confirmed time and again by medical surveys and social workers that painful feet are one of the most prolific sources of misery in advanced years. So old people's feet must be better cared for than at present. Few facilities exist to relieve the old, and often deformed, person who is confined to the house. There is a need for mobile units to render such aid to the patient at home. Services of this kind for the welfare of the aged are now the responsibility of the local authority.

There is much to be done, and skilled people are ready and willing to do it. All that is needed is a direction of effort and the funds to enable such an advance to take place.

BIOGRAPHICAL NOTES

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Hlth. Educ. J., 1951, 9, 6—12

CHILDREN'S IDEAS OF THE ORIGIN OF ILLNESS

By MARIA H. NAGY, *Ph.D., Putnam Research Fellow, Radcliffe College, Cambridge, Mass.*

IF we are to teach children about health we must know in what they are interested and how much they are capable of understanding. Knowledge of their ideas of the origin of illness should throw some light on both these things. A study has therefore been made of the ideas held by Hungarian children of 3–12 years of age and by British children of 8–11 years.

I. Hungarian Children

In the Hungarian study 100 children in Budapest were interviewed during the year 1947–48. There were ten children for each age, boys and girls in equal number, and they were taken from three schools according to the age required. All lived in the same district and were a representative cross-section of the total child population of Budapest so far as their social and cultural background was concerned. Each child was interviewed individually and each was asked two questions: (a) what illnesses have you had ? (b) what makes us ill ? During the interview the children were also encouraged to draw a picture of a germ.

Results

When the answers were analysed according to the childrens' chronological age, the concept of the origin of illness was found to fall into one or other of four stages.

First stage : In general, children between the ages of three and five do not seem to grasp the concept of illness having a cause of general application. They describe only particular causes especially related to their own illnesses.

Example 1 : Victoria H. (4.4) had an ear operation. She said she had dressings in her ears because of pain. Later she said the dressings themselves produced pain.

Example 2 : Irene K. (4.7) said she fell ill from eating too many potatoes. The potatoes moved in her stomach and made her ill.

Second stage : Children of 6–7 years say that illness is due to infection.

Example 3 : Aniko L. (6.10) relates two infection theories. According to the first theory, the infection works in the blood and causes fever. According to the second theory, the infection splits into two parts like a fruit and the illness comes out and attacks a certain part of the body.

Third stage : According to children of 8–10 years illness is caused by a bacillus. The term 'bacillus' is the current term in Hungary for the germ. They speak of only one kind of bacillus.

Example 4 : Anne R. (8.4) enumerates fever, whooping cough and measles as illnesses. "How can we catch them ?"—"You are not allowed to be with people who have them." "Why not ?"—"Not to be infected." "How can you be infected ?"—"The illness spreads to you. You get it if you go nearer." "What makes us ill ?"—"The bacillus." "What is it ?"—"A tiny animal which crawls into the lungs and makes us ill." "What is it like ?"—"It is as small as my fingernail." "How can it get into the lungs ?"—"It is in the bad air we breathe in." "Can it crawl ?"—"It crawls and flies too." "Where was it before it got into the air ?"—"In the dirt." "What do you mean ?"—"It was born in the dirt." "What does it do to our inside ?"—"It dirties it." "What do you mean ?"—"It makes us ill."

Example 5 : Huba L. (8.10) "We get ill because of the bacillus." "What is it ?"—"They are small beings with hands and legs. Getting into the body they do harm." "How ?"—"The bacillus carries the bacilli in a sack." "How can we get rid of them ?"—"By going to the w.c."

Example 6 : Ernest B. (8.5) "We get ill when the bacillus enters the body." "What is it doing there ?"—"It infects the whole body." "How ?"—"It has two wings, four legs and a tubular mouth. It produces the bacilli by putting down spores." "Where is it ?"—"In the stomach." "And in the fingers ?"—"They can do no harm there, only in the biggest organs." "Why ?"—"Because there are no intestines there." "How do we get different illnesses ?"—"It depends upon the part of the body where it goes."

Fourth stage : According to the children of 11–12 years every illness comes from a special kind of infection due to a special kind of bacillus.

Example 7 : Paul N. (11.3) "There are several kinds of bacillus." "Tell me all about them."—"They get into the body by the mouth or anus." "How ?"—"When they attack the upper part of the body they go by the mouth, and to the lower part by the anus." "And what happens there ?"—"They stop in a part of the body, fidget there and poison it. Man goes to the doctor and the medicine throws out the bacillus." "How ?"—"By the mouth or anus again."

Example 8 : Stephen Zs. (11.3) "The round bacillus goes into the blood and produces syphilis. The spiral one bores himself into the lungs. The third one goes, probably, into the heart."

The frequency distribution of the above four stages is shown on Table 1. Table 2 shows the number of children drawing any kind of bacillus.

Table 1 (Hungarian Study)

Origin of illness : Frequency distribution of four stages according to age. Number of children : 100, 10 for each age.

Age	Stage 1	Stage 2	Stage 3	Stage 4	Total
	%	%	%	%	%
3·0–3·11	100	—	—	—	100
4·0–4·11	80	20	—	—	100
5·0–5·11	50	50	—	—	100
6·0–6·11	—	70	30	—	100
7·0–7·11	—	80	10	10	100
8·0–8·11	—	10	80	10	100
9·0–9·11	—	10	70	20	100
10·0–10·11	—	—	80	20	100
11·0–11·11	—	—	30	70	100
12·0–12·11	—	—	10	90	100

Table 2 (Hungarian Study)

Percentages of children, according to age, who drew some picture of a germ. Number of children : 100

Age	6	7	8	9	10	11	12
%	40	60	90	80	100	100	100

II. British Children

In the British study the children whose ideas on the origin of illness were investigated were pupils at two Bristol junior schools in 1949. In one school 150 children aged 8–10 years were investigated. There were 50 children for each year of age and there were equal numbers of boys and girls. They had a good average social and cultural background. The children from this school formed Group A. In the second school 100 children aged 8–11 years were selected, 25 for each year of age, without

regard to sex, and with poor social and cultural background. These children from the second school formed Group B. The average chronological ages are shown in Table 3.

Table 3 (British Study)

Average chronological ages. Number of children: 250

Age Range	Group A		Group B	
	No. of children	Average age	No. of children	Average age
8·0–8·11	50	8·7	25	8·8
9·0–9·11	50	9·6	25	9·7
10·0–10·11	50	10·6	25	10·3
11·0–11·11	—	—	25	11·3
	150		100	

An attempt was made to discover the children's ideas of the origin of illness from essay writing in school classes. To ensure comparability, the teacher in each case read her instructions as follows: "We know that you like writing compositions. Would you like to write one for us? This is not school work, your writing and spelling will not be corrected. Do not ask anything but work on your own. We enjoy everything you write." The subject, "What makes us ill?" was written on the blackboard. The time given was one period of 20 minutes.

Results

As Table 4 shows, the majority of children from both Group A and Group B attributed the origin of illness mainly to infection. Table 5 shows that the means of infection fall into five classes, and these classes are shown for A and B Groups, separately and together.

According to the first class, food or drink, or both, may spread infection. According to the second class cold and hot weather or sudden change of temperature produce infection. According to the third class the touch of dirt and/or dust causes infection, e.g. to pick up something from the dusty road or touch a dustbin etc. According to the fourth class any contact with infected persons or animals makes us "catch" an infection. And in the fifth class there are very mixed items, e.g. God makes us ill, or sleeplessness or a strange climate, lack of air, etc., or the disease in itself is mentioned as a cause of illness, i.e. "infection makes us ill," or "whooping cough makes us ill."

Table 4 (British Study)

Explanation of origin of illness.
Group A: 150 children (3 × 50)
Group B: 100 children (4 × 25)

Age Range	Group A					Group B			
	Origin of illness:	Infection		Other Causes		Infection		Other Causes	
		No.	%	No.	%	No.	%	No.	%
8·0–8·11		49	98	7	14	21	84	8	32
9·0–9·11		50	100	6	12	25	100	3	12
10·0–10·11		49	98	15	30	24	96	7	28
11·0–11·11		—	—	—	—	24	96	13	52
	Totals:	148		28		94		31	

Ratio of Totals for Groups A and B:
Infection: 242 Other Causes: 59 = 4 : 1

Table 5 (British Study)

Means of Infection
Group A: 150 children Group B: 100 children

Factor	Group A		Group B		Mean of Groups A and B
	No.	%	No.	%	%
Food and/or drink	92	61·33	53	53	57·17
Temperature	102	68	45	45	56·5
Dirt and/or dust	55	30·66	46	46	38·33
People and/or animals	66	44	24	24	34
Miscellaneous	16	10·66	8	8	9·33

It appears, therefore, that British children aged 8–12 years think that infection quasi automatically produces an illness by entering the body. In their minds the relationship seems to be an absolute one. Apparently they take no account of quantitative or qualitative elements in the seed or the soil. Table 6 shows that only 1.6 per cent. grasped the idea that infection can have more than one cause, and only 2 per cent. took account of the important factor of the body's resistance, while none regarded heredity as playing any part in infection, and none recognised that there can be degrees of infection. At this age children appear to be unaware that every kind of infection has its own micro-organism.

Table 6 (British Study)

Factors involved in the process of Infection

No. of Children : 250

Factor	Children grasping its significance	
	No.	%
A variety of causes	4	1·6
Varying degree of infection	—	—
Heredity	—	—
Resistance of body	5	2·0

Summary and Conclusions

1. A study was made of the ideas on the origin of illness of 100 Hungarian children aged 3–12 years (in Budapest in 1947–48), and of 250 British children aged 8–11 (in Bristol in 1949).

2. The Hungarian children were a representative cross-section of the child population of Budapest. The British children came from two different classes, one (the A Group) in which the social and cultural level was average, and the other (the B Group) in which the social and cultural level was below average.

3. The Hungarian study shows that

(a) between the ages of three and five, children are incapable of understanding the real origin of illness. They cannot go beyond symptoms of illness to find a causal and general explanation.

(b) Children of 6–7 years of age grasp the idea that infection comes from the environment, but they apply this concept without restriction. They have no detailed idea of the processes of infection. They do not relate infection to micro-organisms unless the relation is suggested to them, but 40–60 per cent. of them are able to draw some kind of germ if they are asked to do so. They do not speak of illnesses as other than infectious, not mentioning, for example, accidents and hereditary illnesses.

(c) Children of 8–10 years of age recognise that infections are caused by micro-organisms and are therefore able to associate the two ideas. They are unable, however, to recognise that different kinds of micro-organisms cause different illnesses. So far as they are concerned, all diseases are caused by one kind of micro-organism.

(d) By the time they are 11 or 12 years old, however, children are able to grasp the idea that different diseases are caused by different micro-organisms, but although they know this they cannot explain it.

(e) The false generalisation that all illnesses are contagious is kept to the end of childhood. The degree of infection and the resistance of the body to infection are left out of consideration.

4. The findings of the Hungarian study are entirely supported by the British findings.

(a) The average British child of 8–11 years appears to consider infection to be the cause of all illness. They do not seem to be yet capable of understanding that there can be many causes of illness and that there are multiple factors in infection.

(b) The process of this infection is seen as a mechanical and automatic one ; if any infection reaches the human body the individual falls ill. Their ideas at this age may be represented by two simple quotations

Illness = Infection

Infection = Illness

(c) Among the means by which infection reaches the body they mention the following: (i) food and/or drink (ii) cold or hot temperature (iii) touch of dirty and/or dusty things (iv) contact with infected persons or animals.

(d) When a comparison was made between the ideas of children from Group A, who come from average social and cultural levels, and of children from Group B, who were below average in this respect, the general classifications of the origin of disease were the same, although the percentage in each group differed.

(e) In British children aged 8–10 from these two schools no significant age and sex differences were found in their ideas on the origin of illness.

5. The Hungarian and British data not only correlate closely with each other but fit well into the whole picture of child development. This investigation confirms that human development includes the development of the capacity to relate cause and effect. At first a child can conceive of only a single cause, but as intelligence matures he becomes increasingly capable of grasping the idea that causes can be complex and inter-related.

Hlth. Educ. J., 1951, 9, 13—15

THE HOSPITAL CATERER AND HIS CONSUMERS

By F. Le Gros Clark, *M.A., Hon. Secretary, Children's Nutrition Council ; Editor, Nutrition Bulletin.*

The physicians of the ancient Mediterranean civilisations undoubtedly had faith in diets as well as in medicines ; and our mediaeval forefathers believed in the virtues of many herbs. They may have been right or wrong in any single prescription. The point is that men have always tended to assume that when a human being is sick or disabled, some appropriate adjustment ought to be made in his diet. It seems reasonable enough ; for something has been or may have been lost from the tissues, and that loss has to be made good. Drugs can only assist to remove from the body that which is preventing its full recovery ; recovery proceeds, however, through the patient's capacity to utilise air, warmth, rest and, above all, food.

The fact that we may as yet know little about the part played by nutrition in recovery makes this business of hospital feeding one of the most interesting fields of medicine to-day. The coming into existence of the Hospital Caterer as a professional man in his own right coincides with a period of some liveliness in the expanding science of human nutrition. It is this that gives the whole subject its peculiar and intriguing quality. Thus the hospital caterer has an important role to play in helping the patient to recover his health.

Personal Contact

But it is not easy for the hospital caterer or chef to come into regular personal contact with many of the patients ; all the conditions of a large hospital are against it. On the other hand, most managers of factory canteens or of commercial restaurants have, I suppose, ample opportunities for moving about among the diners. They are usually well aware that good caterer-consumer relations are worth cultivating, that they are indeed one of the imponderable satisfactions that the job provides.

I know that many hospital caterers make a habit of paying visits to the wards ; and I think it would be interesting to discuss the technique of these visits. The patients in a hospital are a floating population at all stages of alertness and lethargy. But the population of each ward changes

slowly. I would suggest, in general terms, that the visits to any one ward should not be made on a regular day of the week or at a regular meal in the day. Diners always feel more flattered when the visit appears spontaneous, as though the caterer were eager to see to the well-being of his clients. He should solemnly note any comments made ; and finally he might, I think, try to dress the part. How he should dress I do not know ; but the hospital is a place of uniforms, and the chef is traditionally known by his uniform.

Let us consider the kind of consumers the hospital caterer is dealing with. Various suggestions have been made as to the way in which patients' meals should be served to them. But many of these suggestions are coloured by prejudice of one kind or another ; and I should prefer to reserve judgment until we know more about it. On the one hand, hospital dining is not strictly *mass* dining. When a number of healthy people are dining together in a restaurant, the very numbers help to accentuate the cheerful tone of the meal. The hospital patient is aware that the occupants of other beds are taking their meals ; but each meal is often a sombre, lonely affair. Sick feeding in the home is recognised by the family to be a rather special business ; it is part of the recognition of his sad state that the sick man demands ; it is calculated, with its clean tray, its neatly cut bread-and-butter, its little bunch of flowers, to give him the sense of comfort and loving kindness that his soul needs.

On the other hand, we must not exaggerate this aspect. The patient in a hospital is passing through a strange experience ; and he is usually prepared to adapt himself to whatever comes. Provided the food is served clean and warm, and is ample in quantity but not too much, he may take it readily enough. The hospital is not necessarily a home away from home ; and the patients do not imagine that it is. No doubt it is possible gradually to add refinements to the service of meals ; but in the interim it is advisable to seek the happy mean and to insist only on such refinements of service as the hospital staff can undertake.

At the same time, we must remember that a considerable number of working-class patients, especially among the women, are not accustomed to eat much outside their own homes. Even to-day this is probably still true. They are traditionally suspicious of food cooked commercially ; " You don't know what you're getting " is a common phrase. They may overcome their suspicions, partly because the food is good and partly because they must eat. But the women know what cooking and food preparation are ; and what would comfort them more than anything is a feeling of direct contact with the kitchen from which the meals have come. The caterer or chef will be able to speak to them in their own language ; and in my view a visit from such functionaries would do much both to flatter and to reassure them.

We must not forget, too, that the hospital has a part to play in the work of social education in the larger sense. Let us suppose a special sweet or made up meat dish has been served, that the caterer knows by experience to be acceptable to patients. If then the caterer arranged for the recipe to be neatly duplicated and himself handed it round the wards with his compliments, I can imagine that such a touch would have a profound effect on the minds of housewives. No less effective might it be in the children's wards to look in on a visiting day and hand to mothers the recipes of dishes especially favoured by the children.

All this means work, but not too much work ; and any caterer worth his salt should be temperamentally a good mixer in the human sense of the word. We should recollect that where food is concerned, we are all as children ; and the persons who provide the food are on all accounts the most important figures in any household or institution. We may attempt to minimise the psychological influence they have ; but when we are honest with ourselves we cannot overlook it. Meals make up the true rhythm of the day especially when we are sick or convalescent. They are more important to us as meals than any concentration upon gastric juices, calories and vitamins.

Yet we know that protein and calories *do* count in some way. One must preserve a balance ; and it seems the caterer's task to preserve a balance between the patient, who is thinking of his dinner, and the doctor, who is thinking of carbohydrate metabolism or something of that kind.

A great reformation has taken place and is still proceeding in hospital catering, and I believe that this reform must be exerting an educational influence on the public mind. Every patient talks about the meals he had in hospital ; and since there are at any moment about half a million patients in our hospitals, it follows that we are thus continuously influencing a large section of the community. How far we could, in the course of time, assist to improve the food tastes of many families I will not venture to predict ; that will depend on the extent to which we are prepared to seize our opportunity and to realise that the hospital caterer has, if he cares to make use of it, one of the most responsive bodies of consumers in the world.

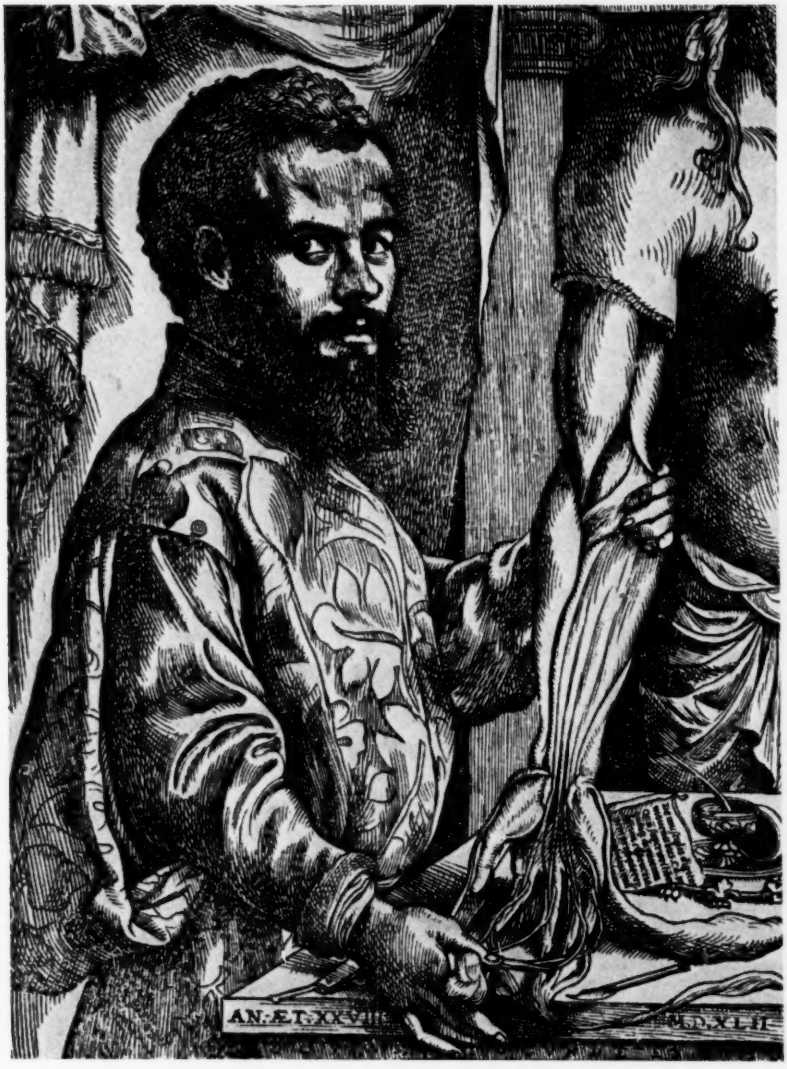
Hlth. Educ. J., 1951, 9, 16—18

MILESTONES IN MEDICINE
13. VESALIUS, ANATOMIST AND MODERN SCIENTIST

By E. Ashworth Underwood, M.A., *B.Sc., M.D., D.P.H., F.L.S., Director, The Wellcome Historical Medical Museum; Hon. Lecturer, University of London.*

Andreas Vesalius—'of Brussels', as he loved to term himself—was born in 1514 and died shortly after he had completed his fiftieth year. His own writings and the controversies which he had with other scholars of his time have told us quite a lot about the first thirty years of his life. Of his last twenty years we know practically nothing. By the time that he had reached his thirtieth year he had become the greatest anatomist who ever lived and a prime inspirer of the new aims of science. In these articles his name has appeared on several occasions, and it will doubtless recur again. Other men can be dealt with briefly in the scope of a short time. But Vesalius—like Harvey, Pasteur and Lister—opened the gateway to a new world. We still use the phrases 'pre-Vesalian' and 'post-Vesalian' to denote certain anatomical conceptions which were current before and after his time.

Vesalius was descended from a line of men connected with medicine —his father was apothecary to the Emperor Charles V—and at an early age he studied medicine at Louvain and then at the University of Paris. In the medical sphere the French capital had lagged behind some of the Italian cities in gathering the fruits of the Renaissance. In fact the French Renaissance did not really begin until the year in which Vesalius was born. Then there flowed from the printing presses of Paris a stream of texts of Galen, who was more than ever established as the Prince of Physicians—though he had been dead for over thirteen hundred years. Vesalius came to Paris from Louvain in 1533, and he had as his anatomical teachers there two men who had established themselves as sound systematisers in the Galenic tradition. It was to these two, Guenther of Andernach and Jacobus Sylvius, that Vesalius owed his thorough grounding in Galenic anatomy. Let it be remembered that this was based to a considerable extent not on human dissection but on the dissection of animals.



Vesalius, Anatomist and Modern Scientist.

The title-page of the *De humani corporis fabrica* (Basle, 1543) by Vesalius.

Vesalius published his first important work in 1538. It was not a book, but a series of six anatomical diagrams (the *Tabulae Anatomicae Sex*). The first three of these diagrams are drawn by Vesalius himself, and are important in showing the development of his anatomical thought. They reveal him as still essentially a Galenist. In several important features too it is evident that Vesalius was describing not human organs but those of various animals, especially the Barbary ape.

There is no doubt that the *Tabulae* were enormously successful for teaching purposes, and they were widely plagiarised. Before they were actually published Vesalius departed for Italy, where he was almost immediately appointed to the chair of anatomy at the important university of Padua. In this post he had scope for his great ideas. His aim was the establishment of anatomy as a science. Knowledge lay, not in the books written centuries before and in commentaries about them, but in the ' fabric ' of the body itself, as revealed by a careful and experienced dissector. This Vesalius certainly was, and he lost no time in ' putting his hand to the business ' of dissection. In other words, he did away with the ' demonstrators ' and ' ostensors ' who had previously carried out the work under the supervision of the teacher ; instead, he carried out the work himself. Students from all Europe soon flocked to the anatomical theatre of this young man of twenty-four. He gave them inspiration and such teaching as could be obtained nowhere else.

After five years of intense work Vesalius finished his treatise on anatomy, *De humani corporis fabrica.* It was published at Basle in the following year (1543), and immediately became the butt for the verbal missiles of the Galenists. To it he prefaced a title-page and a portrait of himself, both of which have become famous examples of the art of the wood-engraver. The portrait happens to be the only authentic portrait of Vesalius which exists. It shows him as a stocky, swarthy, determined man whose eyes mirror his character. The title-page shows him carrying out an anatomical demonstration in an idealised theatre. The human subject and the human skeleton indicate the material with which he mainly worked, but the presence of several animals is intended to show that he used these too on occasion. The book is also remarkable for the fine series of full page illustrations (*tabulae*), three devoted to the skeleton and fourteen to the muscular system. Each *tabula* shows the whole bony skeleton, or the *whole* subject dissected to show various muscles. Anatomy was for Vesalius essentially living, and in these *tabulae* each figure is drawn as if it was in motion, with the relevant muscles contracted. It would be fruitless to attempt to discuss here the identity of the artist who drew these magnificent figures. For generations they were attributed to Jan Stephan van Calcar, a pupil of Titian. They were also for long considered to be the work of Titian himself. He or one of his

unrecorded assistants may well have been the draughtsman. Whoever he was, the real artist behind him was Vesalius, since he undoubtedly made the dissections, chose the positions and inspired the artist's work.

There has been a tendency near our own times to say that the illustrations *are* the *Fabrica*, and that without them Vesalius would be little known. No one who has read even some portions of the book could subscribe to this view. The Fabrica is unfortunately written in a type of Latin which is difficult to read, and the text runs to over five hundred closely printed folio pages. The work is divided into seven books, which deal respectively with the bones and joints, the muscles, the vascular system, the nervous system, the abdominal viscera, the heart and lungs, and the brain. Not unnaturally, where such a vast undertaking involving so much personal dissection is concerned, the different parts of the work vary in quality. The bones and muscles are most carefully and accurately described, and the seventh book, dealing with the brain, is a masterpiece which describes many structures for the first time. His illustrations of these parts show clearly the division into white matter and grey matter. Vesalius was the first to describe and figure the differences between the skulls of various races. These are only a few examples taken at random. The greatness of the work does not depend so much on these as on the vast conception of the whole. The innumerable accurate observations which Vesalius gave were read in the original by generations of students, and his impact was felt by several of the related sciences.

The *Fabrica* was published when Vesalius was in his twenty-ninth year. It was attacked by the carping Galenists, and very soon—perhaps for this reason—Vesalius resigned his chair and took service as surgeon to Charles V. Apart from a new edition of the *Fabrica* in 1555, nothing further of note came from his pen. Where before him there had been only isolated instances of men who had risen above the anatomical horizon, after him the world of the new science is marked by many men who, following in his footsteps and using his methods, made contributions to the advance of knowledge.

Hlth. Educ. J., 1951, 9, 19—23

DELINQUENCY AND EMOTIONAL HEALTH

By D. H. Stott, *Ph.D.*

The focusing of public attention upon delinquency in recent years has had the effect of opening up wider issues. Many researches in delinquency have demonstrated its intimate connection with unsatisfactory family relationships ; but it has also become clear that delinquent breakdown is only one among various alternative forms of personality-failure. Usually the delinquency represented the culmination of a long phase of emotional strain and near-breakdown, with the symptoms changing from phase to phase. Frequently it was but one among a number of, psychologically speaking, equal-ranking symptoms, of which however, owing to our legal-moral emphasis, the delinquent symptoms get picked out for special attention. Yet whether they make their appearance seems to depend not so much upon the major determinants of the personality-disorders as upon certain, often incidental, features in the contemporary situation.

By way of example, let us consider the position of a lad belonging to a ' respectable ' family, that is to say, one whose senior members place high value upon the current moral-social code and make adherence to it a measure of personal worth. Such a boy can only resort to crime at the cost of losing the regard of his parents and of suffering social ostracism. *Delinquent* breakdown, consequently, is hardly entertained by him as a solution to unbearable tension so long as his status and family-esteem remain intact and so long as any other feasible alternative presents itself. It may be that he can remove himself from the situation, or secure its amelioration, by socially-accepted means (e.g. joining the Forces), but if he cannot he is likely to choose a neurotic-hysterical solution. If, however, his illness or incapacity is shown to have no physical basis, and he is ' shown up ' as a shammer or a malingerer, the effect will be to shatter his standing in the eyes of his family. At this point it will probably depend upon the moral intransigency of his upbringing whether he attempts suicide or reverts to a delinquent solution. Thus basically similar pathologies of family-relationships can result in very diverse forms of breakdown ; and very dissimilar pathologies can, ostensibly, have a nearly identical outcome. The deleterious family-pattern ' A ' may produce racing motorists, circus clowns, hysterics and house-breakers ;

while pattern 'B' may also include housebreakers among its artists, tramps and schizophrenics.

The Study of Family Relationships

Delinquency, in short, is recognised as one of the symptoms of unhappiness. This means that our aim is rather to raise the general level of human understanding within our family life, and of the personality-health which goes along with it, than to deal with the delinquency as an isolated deviation. Our attention is directed to the study of family relationships as the foundation of a science of emotional health. Such a science, given the social conditions for its full development and application, will mark the commencement of a new era of human culture. Just as we are now able to manufacture, and destroy, a thousand times more effectively than our neolithic ancestors, so a society which is consciously and scientifically organised upon the principle of maximising emotional health will boast an output a thousand times greater than our present sum of human happiness. A taxi-man, driving me through a Midland town, chooses to impress upon me that it possesses important industries and that the local hippodrome is showing an all-star cast. It would never have occurred to him to mention that a new low had been reached in mental breakdown or that all the local husbands were now giving their wives at least 75 per cent. of their earnings. In so far as our contemporary culture-pattern heeds human happiness at all, it does so fitfully and indirectly.

Maybe the living student of human nature will never see his envisaged millenium, and have to labour and suffer like a Galileo for the benefit of future centuries, or at best his work, like that of the French Encyclopædists, may serve to high-light the injustice and ineffectiveness of the old regime and so win support for the new. At all events, to work ! To work upon the nurture of our infant Gargantua.

It may be profitable to review how far we have got with our new science. With fair certainty we can recognise a range of deleterious human situations—situations which nevertheless are commonplace enough, and are not only not generally recognised as harmful but even regarded by some people as desirable. One of the most outstanding of these approved-yet-deleterious situations arises from the British tradition of unsentimentality—the false lore that by refusing a child, and a boy especially, any outward demonstration of affection, by handling him with a studied offhandedness, by training him to do without his parents' companionship, he can be made manly and independent. The truth is rather that such children, according to the other components of their life-situation, are turned into clinging, anxious, mother-fixated weak-

lings or fear-compensating bullies and show-offs, in either case with a fund of parent-resentment which will, if nothing worse, saw many a leg off table and put stone through window.

There is a second situation-worsening attitude, also deeply rooted in our British family tradition. Many a deeply affectionate parent considers it his or her duty, when the youngster gets a bit out of hand, to warn him that if he persists he will have to be ' put away '. If it ever came to committal by a court, this type of parent would fight it like a wild cat, but the youngster does not know this, nor is he aware how often grown-ups do not mean what they say. To him the threat of being sent away to a School, or the threat-become-habit of some mothers to clear out and leave the family to fend for themselves, are real eventualities. He has therefore to assume that his parent is the sort of person who is liable to leave him in the lurch and who cannot care for him overmuch—all of which breeds in him that insecurity, resentment, suspicion, callousness which can amount to crime. If only our family lore were righted on these and similar points the effect would be comparable, in terms of our emotional health, to what education in hygiene intends for physical health.

Situation-types

We have, however, got a little further than the mere sensing of what is deleterious: we are *beginning* to be able to relate some types of personality-maldevelopment to certain broad classes of unfavourable situation. Admittedly in this there are difficulties. The phenomena we have to observe are exasperatingly untidy: there is no such thing as a self-contained type of family-situation which has differentiated itself from other types, if only because a human situation nearly always comprises a number of people, each with many possibilities of variation. Nevertheless, the life-situation of, say, an illegitimate, institution-reared boy is sufficiently and consistently enough different from that of the boy who lives with two alternately fond and quarrelling parents to enable us to treat them as situation-types. As regards the human material which is the outcome of these varied environments, our task is rather less formidable ; for whereas a comprehensive and cut-and-dried typology of personality is difficult, fairly clear-cut types of reaction seem to distinguish themselves. So regularly, in effect, do certain reaction-patterns arise from certain classes of situation that even with our present scant knowledge they are of immense help in diagnosis. In other words, they act as pointers to what we must look for in an otherwise well-covered and nearly impenetrable complex of family relationships. When one meets a deeply reserved and sullen child (set withdrawal), it is fairly certain that it has either been literally ejected from the family circle, has for several

years been in imminent danger of being so, or has never had a stable parent relationship.[1] Such a child may have been dispatched to an institution or placed with a foster-mother while other children of the family are kept at home ; or someone—very likely a step-father or step-grandparent—has been putting pressure on a vacillating mother to get rid of the child.

With pronounced moodiness (intermittent withdrawal) it can be reckoned that the child has had to face a highly precarious and unfavourable situation, which, however contains elements preventing a complete abandonment of hope. For example, the mother may have temporarily deserted the home or there has been a probability that she would do so, or the mother may be of the type who veers violently in her preferences with a general tendency to discriminate against the moody one.

There is a quite characteristic situation where a parent has been trying to ' palm off ' the child (or children) upon, say, the other party to a divorce, or is trying to lodge them with a grandparent or elsewhere and who, out of a sense of guilt, becomes indulgent and demonstrably over-fond. If the insincerity is detected the reaction seems to be one of callousness and ' moral-defect ' in a loquacious, overbearing personality of the trickster type, in which a superficial charm and confidence may cover a basic insecurity.

Where the parents are affectionally casual or where their attitude, in conjunction with unfortunate events (early separation in hospital) has caused the child to doubt their affection and interest, there is an uncertainty-reaction with its fairly clear-cut syndrome of bravado, bragging, an inability to resist ' being dared ' and high fears compensated by pugnacity or bullying.

Moody parents of the ' King Lear ' type, who swing from fondness to antagonism, tend to produce children of uncontrolled emotionality who quickly resort to active resentment and are jealous of other children.

The direction and degree of the anxieties may be gathered from other fairly well-established syndromes. An active mother-anxiety will show itself by the boy's wanting to do her housework for her, by his buying her extravagant presents, etc., while an *open* antagonism to a parent indicates that he or she has been rejected in favour either of the other parent or of some other substitute.[2]

This exemplification of the diagnostic technique is not meant to imply

[1]Goodlooking children of the last category, however, may, owing to the incidental affection they have picked up, become extremely moody, ' manic-depressive ' personalities, with, in their good phases, a deceptively engaging manner.

[2]In the latter case the discovery of the substitute may enable the therapist to make a satisfactory adjustment of the boy's emotional situation.

that it is based upon certain, quantitatively validated knowledge. By its nature the correlation of the situational data with the personality-data is a difficult, time-consuming task, and we are only just beginning to itemise and define the behaviour of children in a way that lends itself to quantitative treatment. But when urgent action is called for and the prospective benefits are large, humanity does not wait for water-tight certainties. The present state of our knowledge calls for the compilation of additional material, and the advance to greater certainties, on the basis of an extending therapeutic practice. Probably the chief danger to our very young science, which by its nature is untidy enough, is that cautious generalisation be overruled by colourful and unverifiable speculation in the Freudian idiom. While admiring the careful and important fact-collecting of René Spitz in his studies of foundling children, one can only deplore that he should mix up a sound empirical method with suggestions, unsupported by any evidence, that the child of an overfond mother becomes her ' phallic substitute '.[1] In a new science struggling for recognition, and one to boot upon which so much human happiness depends, the utmost care must be taken to conform to the law of minimum inference (i.e. not to jump to more conclusions than the facts justify) and to keep our concepts in the shape of generalised pictures of the actual phenomena observed rather than import metaphors, however picturesque or emotionally attractive these may be.

Environmental Factors First

Our new techniques may also have to face opposition on the grounds that they ignore innate personality-variations. That there are such is, by biological analogy, a virtual certainty ; but of what they consist, and what is their degree, has not yet been established. Moreover, so many environmental possibilities have lately revealed themselves, and give the prospect of accounting for so much of what used to be regarded as innate, that it is our duty to explore them first, peeling them off layer by layer until we eventually get down to those variations for which any environmental explanation seems out of the question. If, for instance, the correlation between the main types of behavioural reaction and the types of upbringing as outlined above can be definitely established, this ' environmentalist ' approach will have amply justified itself. The assumption of innateness has been inhibitive of progress, for heredity has tended to usurp the role of the supernatural as a blanket explanation. Many people, furthermore, have accepted a methodological stereotype in which environmental and innate factors are balanced see-sawlike, and out of a sense of fairness a certain explanatory virtue is allocated to each side of the see-saw. Like every dichotomy this one will have to go sooner or later.

[1]The Psychoanalytic Study of the Child, Vol. 1. 1945.

Hlth. Educ. J., 1951, 9, 24—26

MEDICAL WRITING
II—THE USE OF LIBRARIES AND BIBLIOGRAPHICAL TOOLS*

By W. R. Bett, *M.R.C.S., L.R.C.P., F.R.S.L., F.S.A.Scot.*

This article is intended mainly for those who have so far made little or no use of medical libraries. All who write on medical history or review the literature on various aspects of medicine are on familiar terms with these institutions and with their bibliographical resources.

Many medical men, however, engaged in a busy practice, nurses, and members of the ancillary medical professions often have an imperfect knowledge of the wealth of bibliographical tools at their command. This is a pity, for no worth-while writing can be attempted without reference to the work of others. There are two chief reasons why any one wishing to report an observation will need to consult the literature on the subject. First, he must find out if what has struck him as new or unusual has already been recorded by others. Secondly, he must compare his findings with those of other people. When he makes his observation, he will probably look up the subject in such text-books as are available to him, and in this way he may find references to articles which he will wish to read. If he has access to a medical library, this will present little difficulty, *provided the references are correct.* Unfortunately, mistakes persist in creeping in. Let us suppose that we have found one of our references to be incorrect. What, apart from anathematising the culprit who has misled us, is to be done ?

Quarterly Cumulative Index Medicus

The year given may be right but the volume number of the journal wrong, or *vice versa.* The page reference may be incorrect ; even the name of the journal may be wrong ! Access to a complete file of the journal will generally solve all but the last mentioned difficulty. If the title of the journal is incorrect, things are rather more complicated, but reference to the *Quarterly Cumulative Index Medicus*—a work which will be found in the majority of medical libraries—will usually enable one to rectify the mistake. Published by the American Medical Association, this invaluable bibliographical tool lists articles appearing in the most important medical journals throughout the world. Entries are made under both subject and author, and there are copious cross-references.

Apart from its value in tracing incorrectly cited references, the Index is

*The first article appeared in Hlth. Educ. J. Vol. 8 No. 4 Oct. 1950.

useful in many other ways. For example, any one who has observed a case of some rarity will wish to know what has been written on the subject in recent years. By looking this up in the *Quarterly Cumulative Index Medicus* for the last five or ten years he will find all the really important articles which have been published in the world's periodical literature. If, on the other hand, he knows that a certain author has written a paper on this particular subject, search through the same work for a few years will bring it to light under the author's name, and the necessary reference will be given.

The value of the *Quarterly Cumulative Index Medicus* would be greater but for its belated appearance. Despite its title it is now published in half-yearly volumes ; the last to reach Britain covers the period July–December 1948.

Current List of Medical Literature

In an attempt to bridge the gap, another publication, the *Current List of Medical Literature*, came into being. Until July 1950 this appeared weekly, with a monthly subject-index. Now published monthly, each number has a combined author and subject-index, and the journals and their contents are arranged alphabetically. This *List* is produced by the Army Medical Library, Washington, D.C., and is indispensable to those in search of recent medical articles.

Among the time-savers intended for busy people with little leisure to spend on the huge volume of medical literature are the abstract journals. *Abstracts of World Medicine*, and *Abstracts of World Surgery, Obstetrics and Gynaecology*, both published by the British Medical Association, appear monthly. The abstracts, carefully selected, are full, authoritative, and frequently critical, and each number has a subject and author index.

Another work on similar lines is *Excerpta Medica*, published in Amsterdam. It comprises fifteen sections covering the whole field of clinical and experimental medicine, and it includes an author index. The abstracts are in English.

Some of the journals devoted to the specialties also contain useful abstracts and surveys of current literature.

Medical Annuals

Other guides which are useful to those whose time for browsing in libraries is limited are the annuals. The *Medical Annual*, published by John Wright & Sons Ltd. of Bristol, deals with subjects in alphabetical order, each being discussed by an expert who reviews the year's work and gives references to the articles quoted. Each volume has a general index and a list of ' Books of the Year '.

The Year Book Publishers Inc. of Chicago publish a number of similar annuals covering various branches of medicine and surgery.

Medical Libraries

To the casual visitor libraries are apt to be somewhat bewildering, for the crowded book-shelves and the racks overflowing with journals tend to fill with awe those ignorant of classification systems and cataloguing methods. Most of the large medical libraries have their books catalogued under subject and author in card cabinets, the location of a book being clearly indicated. Many libraries have adopted the decimal classification system, according to which the books are shelved. Another card index lists all the periodicals possessed by the library, together with their location.

Medical Dictionaries

Few people can write about medical matters without occasional reference to a medical dictionary, such as *The American Illustrated Medical Dictionary* by W. A. Newman Dorland, or *Blakiston's New Gould Medical Dictionary*—veritable mines of information which save the reader much valuable time.

When writing about a disease, syndrome, operation, or instrument, which is associated with the name of a person, it is not always easy to find the original work which earned the author his eponymous commemoration. For such purposes the *Encyclopedia of Medical Sources* by E. C. Kelly (Baltimore: The Williams and Wilkins Company, 1948) will be found extremely useful as well as fascinating. In this work one may look up Sir James Paget, von Recklinghausen, or Sir William Osler, and find exact references to the original articles in which they reported their classic discoveries.

Another book which aims at providing references to the most important contributions to the literature of medicine and its ancillary sciences is *A Medical Bibliography : a check-list of texts illustrating the history of the medical sciences*, originally compiled by the late Fielding H. Garrison, and revised by Leslie T. Morton. Under each subject books and articles showing its development are arranged in chronological order, and concise annotations indicate the significance of each contribution.

The Index Catalogue of the Library of the Surgeon-General's Office, Washington, found in the larger medical libraries, is a monumental work in which books and periodical articles are arranged under subject headings with numerous cross-references. Book are also listed under the author's name. Historians and bibliographers regret that this Catalogue, which began in 1880 and is now in its fourth series, is to come to an end.

Get to know the works mentioned and learn finding your way about the libraries to which you have access. Above all, always follow the advice given by Dr. Edward John Routh to the Dean of Chichester : VERIFY YOUR REFERENCES.

Hlth. Educ. J., 1951, 9, 27—31

EVALUATION OF HEALTH EDUCATION

Experience during a Typhoid Fever Epidemic

By Z. ASPERGER, M.D., *Head of the Health Education Department, Zagreb.*

INTERESTING the people in health problems and helping them to acquire health habits are today regarded as important tasks of modern medicine. A reliable judgment, however, whether health education is necessary and useful or not, can be given only when we have measured its effects. It is not at all easy to carry out such an evaluation, because health problems are very complex, and it is difficult to discover what part is being played by each factor. In judging the effects of health-education, what is important is not how much the population have improved their knowledge but whether their habits have taken a turn for the better.

Epidemic In Slavonski Brod

Evaluation of health education therefore requires much time as well as the favourable and settled conditions necessary for a long observation. In exceptional cases, however, when a disease starts spreading under specific conditions, the influence of various factors can become clearer and more apparent, and then it will be possible to get some results in a shorter time. Such an opportunity presented itself during the typhoid fever epidemic in Slavonski Brod, Croatia, in the summer of 1947.

The town of Slavonski Brod with its 18,000 inhabitants, is quite an important industrial and communication centre, but for years it has been a region of endemic typhoid fever. The town is situated on a low terrain where during floods the upper water bearing layer reaches up to only 30 cm. below the soil surface. The sewage system in the inner, most populated part of the town is very old and built of bricks. During the last war, too, it suffered severe damage from heavy Allied air raids. Water from the 2,250 wells, nearly all of them also built of bricks, was contaminated.

When, in March 1947, the river Sava flooded, the high level of underground water brought the sewage system to a standstill. As early as April quite a number of cases of typhoid fever were recorded ; in May the first wave of a serious epidemic broke out. It was the rapid increase in the number of the cases that pointed to a water-borne epidemic.

The epidemic reached its peak in August. The main causes of spread were late hospitalisation, the number of ambulant cases, unwillingness to

go to hospital (until free treatment was introduced, the cost of hospital treatment also had to be taken into account), indolence and ignorance.

Besides many energetic and far-reaching measures, by means of which the epidemic was brought under control (systematic well-chlorination, control of germ bearers, compulsory vaccination, tracing down infected people, sanitary measures throughout the town, especially at the railway station) *health education* of the population was also carried out on a large scale.

A Campaign of Health Education

The centre of the epidemic being in Slavonski Brod itself, the weight of the work in the first week was laid in the town while later those villages in the district were visited in which there were infected people. In Slavonski Brod itself, in the period August 13 till September 10, local doctors gave talks to 900 people ; 790 people attended talks in various branches of the local trades unions ; and in the local cinema the film *Typhoid Fever* (a pre-war film made at the Zagreb Public Health School) was shown on four evenings in succession as a by-programme in addition to the regular show, a talk being given previously. In this way 1,050 people were reached without much trouble, which is in fact more than in all four trades union branches together. Two film shows with talks were given in the Youth Brigade to 300 young people and a talk was given to the Army. On the local radio station articles from the journal *Health Protection* were broadcast seven times.

The talks were given at 2 p.m. when work stopped in factories and workshops. This was the best time because most workers live in the surrounding country far from Slavonski Brod.

Talks accompanied by films were given in fourteen villages to a total audience of 3,520 persons. A previous announcement of these lectures was found unnecessary. To attract an audience it sufficed to go to a village two hours before a talk was given. Meetings had to be held in the evening when farm work was finished.

In the town itself every fifth person attended the lectures or film shows. In the villages the talks were heard by every fifteenth person. This figure would have been considerably smaller if only the inhabitants of those villages had been taken into account where there were cases of typhoid fever and where talks were first organised. In addition to this, 1,500 leaflets and slogans as well as about 2,000 posters were distributed.

The purpose of this extensive health campaign was to teach the population and induce them to adopt these hygienic measures :

(1) to wash hands before meals and after stool ;

(2) to keep drinking water from their own wells under constant control : to disinfect it or boil it, and to avoid unknown water ;

(3) not to eat fruit and vegetables without washing them, and to avoid uncooked dairy produce ;

(4) to protect food from flies and to remove food waste ;

(5) to keep the lavatory clean ;

(6) to get regularly inoculated against enteric fever ;

(7) to send sick members of the family to the doctor without delay.

In this case, then, the aims of the health education campaign were clear and precise and, as regards their contents, relatively rather limited. It was decided therefore to use this favourable occasion to study the effects of health propaganda.

Evaluation of the Results

Two and a half months later health meetings were held in three factories in which the greatest number of people, mostly workers, had attended the first meeting. The meetings were held in appropriate halls so that everybody had a seat. Each listener was given a pencil and a sheet of paper. After a brief introduction various questions were put to the audience who had to write down their answers with " yes " or " no ". It happened sometimes, however, that the listeners missed some question and later it could not be found out to which questions the individual answers referred. So, at the third meeting, the audience were given sheets of paper with written numbers. If someone was late in answering a question he put his next answer by the next number so that the order was not disturbed. The questions were deliberately put rather fast so that the listeners had no time to discuss the questions before answering them. All three meetings were held in a very pleasant atmosphere and the workers and employees showed great understanding and interest.

There were 25 questions, all put in such a way that the answer could be a clear " yes " or " no."

No.	Question :	Answers : Yes	No	Remark :
1.	Have you attended this summer any medical talk on typhoid fever ?	146	54	
2.	Have you yourself or any of your nearer neighbours become infected with typhoid ?	42	158	
3.	Did you wash your hands before meals before you attended these talks ?	102	98	
4.	Have you started washing your hands since attending these talks ?	155	45	
5.	Did you, before attending these talks, wash your hands after stool ?	104	96	
6.	Have you started washing your hands after stool since hearing these talks ?	151	49	
7.	Have you, since hearing the talks, done anything to repair your well (stopped water being drawn in other people's buckets, removed the mud round the well, covered it in) ?	125	69	6 did not know

No.	Question:	Answers: Yes	No	Remark:
8.	Did you ever drink chlorinated water before these talks ?	72	128	
9.	Have you drunk chlorinated water since these talks ?	187	13	
10.	Have you, since the talks, done anything towards repairing and cleaning your lavatory (washing, scrubbing, emptying, covering the pit) ? ...	166	33	1 did not know
11.	Did you eat fruit without washing it ?	159	41	
12.	Have you, since the talks, washed fruit before eating it ?	101	99	
13.	Can flies spread typhoid fever ?	195	5	
14.	Can typhoid fever be spread by cough ?	104	32	64 did not know
15.	Can typhoid fever be spread by milk or butter, cheese or cream ?	195	4	1 did not know
16.	Has the factory management, after the talks, undertaken any *new* measures against typhoid fever (compulsory hand washing, chlorinating water, boiling water, cleaning and repairing lavatories, wells, etc.) ?	180	17	3 did not know
17.	Are these health talks necessary ?	196	4	
18.	Are they interesting ?	177	23	
19.	Have you talked to anyone about them ?	156	44	
20.	Have you seen any leaflet about typhoid fever ? ...	187	13	
21.	Have you read it ?	179	21	
22.	Have you passed it on to somebody else ?	105	95	
23.	Have you seen the film about typhoid fever ? ...	62	138	
24.	Have you heard about germ bearers ?	162	38	
25.	Have you been inoculated this summer against typhoid fever ?	189	11	

Most of the answers are quite clear. Yet the following details are to be pointed out :—

Before the health meeting 98 people did not wash their hands before meals ; after the talk 53 contracted the habit. This means that in 54 per cent. of the cases health instruction was successful. Forty-seven people started washing their hands after stool, or 48.9 per cent. of those who had not been doing it before. The weakest response was to the appeal not to eat fruit without washing it,—a total of 37.7 per cent.—which was to be expected. As at the time of the health propaganda campaign compulsory chlorination of water was introduced, the good result cannot be regarded solely as the effect of the propaganda. The question " Can typhoid fever be spread by cough ? " shows to what degree epidemiological facts are still unknown to many people.

Analysing all these answers there is not the slightest reason to doubt their sincerity. On the contrary, the paper sheets with the answers often carried various remarks for better explanation. There were answers like these: I have no well ; I have an English W.C. ; I do not chlorinate water but I boil it ; I wash my hands at home but not at the factory ; the landlady has had the well repaired ; I have not passed on the leaflets

as they are pasted on the wall ; etc., etc. All these remarks, though apparently naive, certainly show willingness to give precise answers to the various questions.

It has to be kept in mind that, in addition to the talks themselves, the part of the health propaganda not yet separately mentioned was also of great influence : the educational work of hospitals and medical institutions ; stricter sanitary control of restaurants, at the railway station and other public places ; and, finally, the whole emotional state created by the appearance of typhoid fever.

Socio-medical enquiries of this kind have rarely been carried out, and this account should give encouragement for more active work in a similar direction.

BIOGRAPHICAL NOTES

Z. ASPERGER, M.D.—Graduated in Zagreb in 1943 ; since 1947 Head of the Health Education Department, Ministry of Public Health of the People's Republic of Croatia, editor of the health education journal "Protection of Health" ("Zastita zdravlja") and assistant editor of the Croatian "Medical Gazette" ("Lijecnicki vjesnik") ; assistant of the Department of Medicine, Zagreb Medical Faculty. Has published numerous articles on health education.

F. LE GROS CLARK, M.A. (Oxon.).—Hon. Secretary to the Children's Nutrition Council. Editor, *Nutrition Bulletin*. Engaged during the war under a Leverhulme Research Grant on study of social aspects of the communal meal schemes. Author of a number of reports and publications on the economic and administrative problems of nutrition in Britain and other countries.

D. H. STOTT, Ph.D.—For 14 years a schoolmaster, mostly teaching senior boys Molière and not to take the older generation too seriously ; then a short incursion into a secondary modern school, during which he had many sobering and some cynical thoughts about British education. In 1946 was commissioned on behalf of the Carnegie United Kingdom Trust to find out the causes of juvenile delinquency, and spent some five years in an approved school, as a result of which his faith in human nature was revived.

Hlth. Educ. J., 1951, 9, 32—45

THE FOOD AND DRINK INFECTIONS

THE interest in the food and drink infections that was stirred up at the Conference convened by the Central Council for Health Education in London on 9th October 1947 continues to grow. The Central Council therefore thought it timely to convene a second Conference in London on 31st August 1950, to review the problem, examine the progress made and consider what remains to be done. The second Conference was attended by over 600 representatives of 400 Local Authorities in England, Wales and Northern Ireland. The following pages contain a summary of the main points made by the principal speakers.

THE PROBLEM RE-STATED

By PROFESSOR G. S. WILSON

(*Director of the Public Health Laboratory Service*)

UNLIKE most infectious diseases, which are declining rapidly, food poisoning is on the increase. Before the war we had an average of about fifty outbreaks a year. We now have nearly a thousand. Some of this increase is due to better reporting but much of it is real.

Nearly all food poisoning is caused by bacteria. The number of outbreaks due to chemical poisons in any single year can be counted on the fingers of one hand.

There are three main types of bacterial food poisoning:

1. The Infection type, due to organisms of the Salmonella group. These organisms are widespread in animals, poultry, ducks and vermin, and may gain access to food in many different ways. They cause a febrile disease accompanied by vomiting, diarrhoea and abdominal pain lasting for two to five days.

2. The Toxin type. This is caused mainly by an organism known as *Staphylococcus aureus* which is present in the nose of about 40 per cent. of healthy persons and is often found on the skin, where it may cause boils

and sores. When allowed to grow in suitable types of food it produces a poison which gives rise on ingestion to an illness very similar to severe sea sickness. Recovery is rapid and is usually complete within twenty-four hours.

3. The Non-Specific type, which appears to be due to organisms that do not usually produce disease unless they are present in very large numbers.

About 40 per cent. of outbreaks of food poisoning are of the Infection type, 20 per cent. of the Toxin type and 40 per cent. of the Non-Specific type.

Why is food poisoning becoming more common? There are two main reasons.

1. We are eating made-up food far more often than before the war.

2. Communal feeding is being introduced to an increasing extent. If we all fed at home and ate nothing but roast beef or lamb there would be very little food poisoning. Made-up foods are potentially dangerous because, if they are kept at a favourable atmospheric temperature, bacterial multiplication can occur in them very rapidly. Pressed beef, brawn, sausages, pies, rissoles and similar made-up foods are all admirable foods for bacteria to grow in. Bread, vegetables, fruit, freshly cooked meat, and canned meat eaten as soon as it is opened practically never give rise to food poisoning.

Communal feeding presents dangers that are not present to anything like the same degree in the household kitchen. The food is handled in large quantities and, if it gets contaminated from any source, scores or hundreds of people may be affected instead of the half-dozen or so at home. Moreover, large quantities of food are more difficult to cool than small, and the common practice of cooking meat and gravy the day before they are eaten is most dangerous.

The one supreme factor in the causation of food poisoning, more important than all the rest put together, is temperature. Even if we all ate made-up foods in communal canteens there would be little or no food poisoning if the ingredients were kept cool before mixing, and the food was then thoroughly cooked and eaten at once. The danger lies in leaving food at high atmospheric temperatures at which bacteria grow rapidly. The incidence of food poisoning can almost be predicted from the level of the temperature on the Air Ministry's roof.

My recommendation, therefore, is, do everything to avoid bacterial multiplication in food: get the food as fresh as possible, avoid all source of contamination by scrupulous attention to personal hygiene, keep it in the refrigerator till it is cooked, cook it thoroughly, eat it at once, and, if there is any left over, cool it as quickly as possible, and keep it in the refrigerator.

GASTRO-ENTERITIS IN INFANCY

By Bernard Schlesinger, O.B.E., M.D., F.R.C.P.

It is seldom possible to trace a definite bacterial infection of the milk and to recover the same organism from the stools of an affected infant. The bacteriology of gastro-enteritis has not so far been satisfactorily settled ; yet there is little doubt that some bacterial agent must be responsible, since the disease is one of the most infectious hazards of infant life and there are on an average 3,000 deaths from it annually in Britain. It is almost entirely confined to artificially fed children. I can only recall two cases who were wholly breast-fed and had to be admitted with this disorder to my unit at the Hospital for Sick Children, Great Ormond Street.

In my student days we were much troubled during the warm months of each year with severe epidemics ; so much so that they received the name of ' summer diarrhoea.' These recurring bouts of the disease have now disappeared, largely I believe with the replacement of horse-drawn traffic by mechanical transport. Less manure in the streets and stables results in fewer flies, and these may have been the carriers of the infection to the infant's food or person. But the danger of fly-borne infection still exists, and milk, bottles and teats should never be left exposed to become contaminated.

Epidemics of gastro-enteritis still occur, but now they are more often encountered during the winter months when colds, influenza and various upper respiratory infections are about. It must be realised that a mild adult cold may very easily be passed directly or via the feed to an infant, in whom it can then produce a severe and often fatal attack of gastro-enteritis. In such cases the infant is first likely to suffer from an acute inflammation of the middle-ear, and these cases form a distinct group of parenteral infection in contrast to the direct enteral infection we have been considerng. Many of the isolated epidemics in obstetric hospitals or private nursing home nurseries owe their origin to such sources, particularly when they are overcrowded and understaffed. Under such circumstances even wholly breast-fed newborn infants may become affected.

How ignorant parents are of this danger of communicating infections to their infants is seen by that unpardonable habit some mothers have of moistening the teats of the bottles by putting them into their own mouths before giving them to the baby to suck.

Even when the technique of preparing a baby's feed is apparently

sound, there are many ways in which it can become contaminated. I well remember being disturbed by a continuous run of diarrhoea and vomiting in the children's ward of one of my hospitals. This was puzzling, for all the milk was pasteurised on the hospital premises. After a while I suspected the plant, which was an old one, and bacterial counts taken on samples of milk demonstrated that, far from rendering it sterile, many more colonies were grown from the milk after it had passed through the pasteurising machine than before it entered it.

Precautions

It has been shown that in order to safeguard the infant, bacterial counts of a milk mixture made up for 24 hours should not be more than 500 per cc. Good procedure brings down the count to 5 per cc. or less. Counts over 100,000 are a danger signal and indicate aseptic or mechanical errors. In hospital milk kitchens this is still quite a problem, and when outbreaks of diarrhoea occur it is imperative to autoclave all equipment. Formula stock water when cooled should be placed immediately into a refrigerator, the temperature of which should be checked and never allowed to go above 50° F. The technique of feed preparation should be reviewed and its efficiency checked by culture. As an ideal measure all prepared feeds in the bottle, with the teat *in situ* covered by a removable paper or cellophane cone, should be autoclaved by high pressure low temperature method.

The possibility of carrying out this programme is limited to those institutions with an efficient laboratory service. Even a carefully planned daily routine of preparing the feeds may easily go wrong in some of the converted houses which have been turned into private obstetric nursing homes, with a small and often changing staff, adequate to deal with the lying-in mothers but not so competently with the baby.

The same problem faces residential nurseries largely run by a not fully trained staff and more so the post-war rest centres which are veritable black spots for bringing up infants. Many of our cases come from such institutions, necessary I suppose in post-war England with so many broken up homes and building restrictions, but some revolutionary public health measures are urgently required to reduce this wastage of infant life.

Safety in the Home

What guidance can we give the mother in the home, for in the vast majority of cases she is responsible for looking after her own baby? Her task is not made any easier by the present overcrowded housing accommodation in which she has to carry it out. I am assuming that a

refrigerator is not available and that her other duties make it necessary for us to make the procedure as simple as possible. If possible she should breast feed. But, if she cannot do this, dried milk foods are certainly the safest from a bacteriological point of view, and as long as the powder is kept dry bacteria will not grow. Should it get damp, however, they will flourish and the tin must then be discarded. Feeds should be freshly prepared each time they are required. Bulk preparation for the day, such as the Soxhlet method of home pasteurisation of fresh cow's milk, is only safe if the household possesses efficient refrigeration. This also applies to the overnight preparation of the early morning feed, which is kept warm ready for the baby's awakening. What better culture medium could be desired? The feed will be found teeming with organisms!

A separate kettle should be kept, in which the water for the feeds can be boiled and kept ready for use.

The mother should take great care in washing her hands thoroughly and drying them before making up the feeds, and if she has a cold she should wear a mask of four thicknesses of gauze over the mouth and nose.

After the feed the bottle should be washed in soapy water or with some commercial detergent, rinsed and then boiled in a saucepan with a lid for five minutes. The water is then poured off and the bottle left in the saucepan which, with the lid, makes an efficient sterile container. The teats are dealt with in the same way, allowed to dry and kept in a small boiled galley pot with another slightly larger one, also boiled, inverted over it as a cover. Two bottles at least will be required and three or four teats, so as to have spares. The teats should be placed on the bottle with the minimum of handling and if it becomes blocked and cannot be shaken free it should be replaced by another.

This all sounds ridiculously simple and hardly worth mentioning, but how many homes employ such methods and how often have we seen bottles half filled with stale milk standing exposed with flies buzzing round the teat?

These measures are not complicated, do not take too much of the mother's precious time and would certainly prevent much illness among babies, which in a certain proportion may well prove fatal.

Welfare centres and health visitors have certainly helped to spread these ideas on hygiene, but there is still need for further propaganda.

Treatment of gastro-enteritis has on the whole certainly improved since the war. We are steering in the right direction but there are still 3,000 annual deaths to contend with. In some countries in Europe, where the hygiene is better than in Britain, gastro-enteritis is rarely a problem.

CONDITIONS IN CATERING ESTABLISHMENTS

By Betty C. Hobbs, B.Sc., Ph.D., Dip. Bact.

(*Food Hygiene Laboratory, Central Public Health Laboratory, Colindale*)

Probably two of the principal causes of food contamination sufficient to cause illness are the transfer of infection from the hands of the food-handler to food, and the storage of infected food under conditions which encourage organisms to multiply readily.

But what is being done to lessen the risk in the average canteen kitchen?

Facilities for Hand-Washing

There should be a wash-hand basin not only in or immediately adjacent to the toilet but also in the kitchen itself. Too often kitchen accommodation is so cramped that there is little room for an additional basin, and hand-washing is done in sinks used for washing dishes or vegetables. If sinks are full of crockery and vegetables, hand-washing after using the toilet will be put off, perhaps forgotten. Organisms from the hands may linger in the sinks. It has been shown with teak sinks at least, that faecal bacteria remain even after washing down with soda solution. Too little attention has been paid to facilities for hand-washing, and even in establishments where reasonable washing hand basins have been installed near to the toilet, one often sees obvious signs of neglect. They may be broken or covered with dust, or full of irrelevant articles or sometimes completely disused, with the water turned off. On one memorable occasion, at the back of an underground kitchen, crockery drying cloths were seen hanging on a line across the w.c. while the wash-basin was filled with pages from the telephone directory.

The usual thing for drying hands in kitchens is a communal roller towel, which can very easily spread infection. Individual towels should be used and paper towels are convenient and relatively inexpensive. The continuous roller towel and hot air dryer are both excellent for large establishments.

Whatever precautions are taken to free hands from pathogenic, that is disease-producing, bacteria, it is impossible to guarantee complete elimination. Contaminating bacteria from the intestine are fairly easily removed by thorough washing but those from the skin which may be present on the hands and which may live in the deeper layers of the skin may not be removed except by drastic treatment with antiseptics. A small cut or other seemingly harmless lesion may harbour food poisoning bacteria capable of producing poisonous substances in foodstuffs. It is essential, therefore, that food should be handled as little as possible.

To walk unheralded into a canteen kitchen often revealed a worker holding the joint with one hand, cutting up portions of meat for the midday meal and arranging each slice on a large plate with the fingers. There may be a delay of a few hours before the meat is eaten. Watching behind the service hatch of a local canteen one day by day sees fingers being used for serving various kinds of food including fish-cakes, meat, potatoes, and green stuff. There are many well known outbreaks of food poisoning attributable to direct handling of food by carriers of food-poisoning organisms. Workers should be told the dangers of this practice and provided with equipment to overcome it.

Food Storage and Refrigeration

It is impossible to keep foodstuffs free from bacteria, and unavoidable contamination may sometimes occur. It is essential that all susceptible foodstuffs should be stored under conditions which will discourage growth of germs likely to cause food poisoning or food-borne infection.

The second factor of vital importance in the control of food poisoning is the storage of food, and this is most frequently overlooked in designing kitchens for bulk preparation of food.

The practice of cooking meat and other foods a day ahead of requirements, although reprehensible, is said sometimes to be unavoidable. If we accept this as true, then facilities for rapid cooling and ample cold storage should be regarded as essential, and the staff should be drilled in routine procedures designed to prevent the multiplication of organisms in foodstuffs. Recently the cooling rate of 6 lb. pies was tested in the bacteriological department of one of our well known wholesale firms. It was found that the pies standing near a large fan, and therefore in a circulating air stream, cooled very much more rapidly than pies in still air. Before putting joints in the refrigerator therefore, there should be a preparatory cooling stage in a moving air stream. If this air stream

could be cooled so much the better, but the presence of a simple fan would cut down the time between cooking and refrigeration.

All fluids such as gravies, stews of mince and steak, etc., should be transferred from the large deep cooking vessel to small shallow vessels for rapid cooling before refrigeration. Such meat dishes should never be allowed to cool slowly overnight at room temperature. These conditions encourage anaerobic spore-bearing bacteria to multiply rapidly. Ample refrigeration and cold rooms should be supplied, and is it too much to ask that these essential requisites of every kitchen should be made more readily available and freed from purchase tax ?

General Design of Kitchens

Spacious, well ordered kitchens with equipment designed for easy cleaning and sterilisation, and staffed by workers taught the principles of hygiene in relation to themselves and the food they handle, would help considerably in the prevention of food poisoning.

Orderliness is not always possible under cramped, rushed and overheated conditions, when the energies of the staff will be wasted and their minds fretted by the ceaseless effort to overcome inevitable difficulties. The general design should be such that method and orderliness are assured.

Finally a word about washing-up. It is not suggested that bad washing-up is necessarily a direct cause of outbreaks of food poisoning, but crockery, cutlery and food containers washed in water and wiped with cloths teeming with intestinal and other bacteria will grossly contaminate foods. Our aim for all kitchens should be at least two sinks, one for a good detergent wash and the other for a near-boiling rinse at 170–180° F. Where dish-washing machines are used the detergent and rinse sections should be carefully watched so that the solution is kept at a uniform strength and the rinse maintained at 170–180° F.

One wonders whether in the old days when so many houses possessed spacious kitchens, with big larders and other cellars for cool storage, there might have been less food poisoning than in modern times. Although supposedly more enlightened, we squeeze the kitchen into a small space on the sunny side of the house, forget about cool cellars, put the boiler in the kitchen and make refrigerators a remote possibility for the favoured few. Let us hope and work for better design of kitchen and equipment, and food-handlers trained in the principles of food hygiene.

ACTION BY THE LOCAL AUTHORITY

By Dr. E. K. Macdonald, O.B.E.

(Chairman, Central Council for Health Education, and Medical Officer of Health for Leicester)

The action a Local Authority can take to combat food and drink infection lies within four main categories—educative, exemplary, admonitory and penal, in that order of importance.

In the Food and Drugs Act, 1938, and the recent model byelaws on the clean handling of food we have a most valuable and powerful code for the improvement of our standards.

Together with the various Regulations, dealing with milk and meat for example, they give us all the powers we want.

I think the main difficulties are going to be in the interpretation of what is "reasonably necessary," particularly with regard to open air markets. One cannot imagine that an ordinary wooden market stall is particularly hygienic but the provision of a chromium and perspex container and its storage would present the stallholder with a major problem, just to mention one difficulty. We have a very big market at Leicester and are just beginning to wonder how we are going to apply the byelaws. It is certain that shopkeepers will watch most carefully to see what we do.

It is for the Local Authority to see that the various clauses of the Act, Regulations and Byelaws are carried out ; and it is no doubt comforting to those smaller Local Authorities with populations of over 40,000 and in some instances of even smaller size, but without County Borough status, who have recently lost so many other powers, that it is still their right to carry out these most important duties.

The third class of action that the Local Authority might take is admonitory. An offender against our food handling code should have a serious warning before proceedings are taken.

Setting a Good Example

Then there is the need for the Local Authority to set a good example, not only in the way it carries out its duty to the public but also in the very high standard it sets in all its dealings with those it employs or with whom it does business.

I have in mind two particular points. The first is the standard of hygiene of the Corporation market.

The second is that the Authority must not do anything itself to increase

the risk of food infection. I have had rather a startling experience of that.

During the war, we were all requested to collect pig food and bins for that purpose were placed in the streets. In Leicester the bins soon became an unmitigated nuisance, and, more important still, serious infantile diarrhoea developed in the City culminating in 1947 with no less than 80 infant deaths from this cause. On August 16, 1947, I requested the removal of the pig bins and this was done. Whether it was the removal of the pig bins I do not know, but in the middle of August something happened that changed the picture entirely. In the remainder of the year deaths from gastro-enteritis per week were one quarter of those in the earlier part, and in 1948 and 1949 there were practically none. Our infant mortality rate—which for 1947 was not at all satisfactory—for 1949 is the lowest of any large town and very nearly the lowest for the country as a whole—the difference lies almost entirely in the mortality from diarrhoea.

The Local Health Authority obtains its health education powers under Section 28 of the National Health Service Act, but for other authorities there is still the power conferred on them by Section 179 of the Public Health Act, 1936. Needless to say, the Central Council for Health Education exists primarily to help the Local Authority of every size in this work.

As examples of what my own Authority has done (and I appreciate that what has been done is very little, as yet, but it is a beginning), my Health Committee has made a particular drive to improve the cleanliness of ice-cream manufactured and sold in Leicester. This has been done without one prosecution and without any Court case. A very high standard has been set for the condition of the premises from which ice-cream is sold, and for its manufacture. A specially trained Sanitary Inspector has kept an almost daily watch on the premises and methods used. In conjunction with the Public Health Laboratory Service (who have been most helpful), samples of the product at all stages of manufacture have been submitted to analysis and the results talked over with the workpeople concerned. As a result the bacterial standard of ice-cream sold has improved enormously and it is rare now for us ever to get a Grade 2 sample, let alone Grades 3 or 4.

Educating the Food Handlers

Another and perhaps more unusual step has been the appointment of an officer with domestic science training whose job it is to visit the cafés, restaurants, canteens and similar establishments in the City and try to educate the food handlers on how to improve their methods. This officer has, of course, no power of entry, but possibly it might be worth

while to designate her as an authorised officer under Section 100 of the Food and Drugs Act. She has only been with us about 2½ months, but she has already inspected over one-third of these establishments in the City. Her reception has been most satisfactory and I have high hopes that the appointment will be a great success. Strangely enough, she tells me that some of the most unhygienic places are the most desirous that we should adopt the Guildford Trade Guild Scheme! I can only imagine that some people suffer from delusions not of grandeur but of cleanliness. This officer works in the most complete co-operation with the Sanitary Inspectorate.

There is nothing spectacular in what the Local Authority can do. The problem and the action to be taken are both well known. It is only a question of perseverance and steadily pegging away at education of the food handlers.

To summarise, then :

In the existing code of Statute and Byelaws, the Local Authority has a most ample and valuable basis on which to build a service, the object of which is to improve the standard of food handling ;

most authorities, including my own, are not, as yet, making sufficient use of their existing powers ;

the educative power of the Local Authority is much more important than their legal or penal powers ;

the appointment of a health educator with domestic science training to work with the Sanitary Inspectorate may prove to be a most valuable method of obtaining the co-operation of the workpeople concerned ; and

finally, the prime object of the Central Council is to help Local Authorities, and its services are at their disposal.

GAINING THE CO-OPERATION OF THE FOOD TRADERS

By H. A. Perry, M.R.San.I., M.S.I.A.

(*Hon. Sec., Guildford Hygienic Food Traders' Guild*)

Statutory requirements alone, although most essential as a background, are not the complete answer to the food and drink infection problem. The interest of the food trader and every person engaged in the preparation, handling and distribution of foodstuffs must be obtained if we are to ensure the safety of our food supplies.

We must see of course that they have facilities adequate for maintaining a good standard of cleanliness. But they must learn to use those facilities properly, and to observe strict cleanliness in their personal habits.

Educating the Food Handler

How are they to learn these important things? By posters, pamphlets and public lectures? In my district we have found that these orthodox methods meet with a very luke-warm reception. We have found that the best way is to help them to discover and understand WHY they should carry out our recommendations. This does not mean that we give them an intensive course on bacteriology, but we do try to explain, by means of informal talks to groups of food handlers, how infection is spread, the types of infection, which foods are most susceptible, and, of course, what they can do to prevent infection. Incidentally, we have found the film strips, issued by the Central Council, to be invaluable in this work, and also photographs of local premises before and after improvements have been carried out.

We have also introduced the subject to the senior school children about to leave school (who may enter the food trades) and to students attending courses concerned with food handling at our local Technical College. We gave them lectures and film shows and ran a simple competition which proved very successful indeed. We have also organised visits by groups of food workers to different types of food factories where we know the standard of hygiene is good. In this way they see for themselves what is being done by the more enlightened sections of the trade.

The Guildford Guild

These activities, and many others, are all designed to assist in the education of the food handler. This work is greatly simplified through the organisation we have set up, known as the Guildford Hygienic Food Traders' Guild.

The Guild is sponsored by Guildford Borough Council and is administered by an Advisory Committee consisting of five members of the Council, a trader representative of each food trade, two representatives of food trades employees, the local School Meals Supervisor and the Factory Canteens Adviser to the District Inspector of Factories. The cost of the scheme, which is relatively small, is borne by the Council under its powers given by the Public Health Act, 1936. Separate Codes of Practice for both traders and employees have been drawn up for each food trade, based largely on existing legislation, but clearly defining some of the rather vague requirements of the Food and Drugs Act.

No trader is accepted for membership until all requirements of the

appropriate codes of practice have been complied with, but employee members are accepted on a signed undertaking to conform with the employees' code after their suitability for membership has been carefully investigated.

Conditions relating to administration and membership of the Guild have been drawn up, and they provide for at least one annual report on each trader member's premises before membership is renewed for another year. Provision is also made for the warning, suspension or expulsion of members who fail to maintain the standards laid down. The Advisory Committee is most insistent that continued membership of the Guild shall not become merely a matter of routine.

Each trader member is given a certificate which he may display if he wishes. The certificate remains the property of the Guild and may be withdrawn, but after three years working of the scheme we have not found it necessary to go beyond the ' warning ' stage.

With regard to membership of the Guild, of the 317 food premises in the Borough, we now have 153 trader members, and 941 employee members. The scheme is therefore a very successful one and is continually making progress. In November 1950 we are embarking upon a further campaign which we hope will considerably widen the interest of the public. Our aim is " An assistant specially trained in Food Hygiene in every food establishment in the Borough," and we are organising a course of four lectures for food handlers, followed by a short written examination with a certificate of competency for each successful candidate. The subjects to be covered by these lectures are :—1. Elementary Bacteriology. 2. Food Borne Diseases. 3. Public Health Aspects of Food Hygiene. 4. The Practical Application of Hygiene in Food Premises.

An exhibition, incorporating a reconstruction of the Central Council's Safe Food Display, will also be held during the period, in addition to film shows, lectures etc.

Conclusions

An organisation of this kind has many advantages. It gives the members a feeling of individual responsibility and encourages the employee to support the efforts of his employer. The members feel that they have a voice in deciding what shall be done. The Guild provides a convenient and sympathetic channel for food hygiene work. Friendly relations are established between the health department and the food traders generally. The right to make statutory demands remains, and these demands are more readily met. Even traders who are opposed to this scheme feel obliged to carry out improvements to their premises to keep in step with the generally raised standard throughout the town.

The only disadvantage is the additional work involved. In the early stages this is considerable, but it becomes easier as the organisation grows. Initially the work is chiefly concerned with the structural improvement of premises, but later it is found that more time is given to educational work.

We have, of course, discovered 'back-sliding' in a comparatively small number of instances, but a letter indicating that the matter would be reported to the Advisory Committee has resulted in immediate compliance with our requirements.

An objection which has been raised by opponents of the scheme is the possible difficulty of prosecuting a trader for an offence where a certificate of membership has been issued. So far, the position has not arisen, but I am advised that legally, there would be no difficulty. The certificate states that the member has " attained and agreed to maintain " certain standards (which is a statement of fact) and his failure to do so would only accentuate his offence in court proceedings.

The traders themselves were doubtful about the advisability of issuing certificates of membership because of their own fears from a business point of view. But all such objections appear to have vanished, and the trader members themselves have initiated a new type of display sign which is more prominent than the certificate and invites the public to shop wherever the sign is displayed.

In some places, recommendations have been made to adopt a grading system for food premises similar to schemes operating in America. I do not think that such a scheme is practical in connection with a *voluntary* organisation. I cannot see how a trader could be persuaded to voluntarily display a sign indicating that his premises were considereed to be on a lower grade than his neighbour—not even in Guildford ! If a statutory scheme were to be operated on these lines, then I think it could work.

It has also been suggested that a Guild should be operated by the food traders themselves, or through the Chamber of Commerce, etc. Personally, I do not like this arrangement at all, and I think it has the following objections. The scheme could be used by a group of traders to further their business interests, and have little or no real value from a food hygiene point of view. Recommendations for membership would have to be made on an inspection of premises—by whom would the inspection be made—by other traders? Surely not! The Local Authority is the body charged with the duty of securing suitable standards in food premises, and any activities designed to achieve this object should be sponsored and controlled by the Authority.

Hlth. Educ. J., 1951, 9, 46—48

BOOK REVIEWS

DELINQUENCY AND HUMAN NATURE, by D. H. Stott. (Carnegie United Kingdom Trust, Dunfermline, Fife. 1950. Pp. 460. Price 5s. or $1, post free.)

At a time when so many people, including prominent figures, are given to sweeping, dogmatic assertions on both the causation and the cure of delinquency, it is good to have a report like this available. It is very readably written, mainly in the form of a report on clinical work. Indeed, one of Stott's conclusions is that in the study of delinquents with a view to understanding and dealing with delinquency, the clinical method as distinct from the statistical approach, will always be very necessary. The whole subject is treated with remarkable insight and a pleasant sense of humour.

He prefers to group the boys he examined according to types of reaction rather than by attempting to classify types of person. He regards delinquency as a breakdown in face of an intolerable situation which itself is the product of a long history of influences. Since Stott accepts as fundamental a need for good human relations and a natural tendency to try to protect and maintain these, along with a need to count in the human environment, he regards delinquency as a family problem. It is interesting that he says he never found sufficient cause in school life or the cinema. Nevertheless, although he agrees that the early years of human relationships are vitally important he does not regard them as fatally determinative, so strong is the human tendency to get on an even keel.

Stott's conclusions yield five main motives in delinquent action, avoidance-excitement (the excitement as a symptom of unconscious avoidance tendencies), inferiority-compensation, delinquent-attention-seeking, resentment against parents and wish to secure removal from home. In the cases reported on, the first of these was the most conspicious and the last the most prevalent.

Momentary causeless yielding to temptation is dismissed as a fiction and guilt feelings are regarded more as crisis factors than prime causes. It is interesting to see how closely is the question of parental discipline bound up with the nature of the affectional situation between the boy and his parents.

The book is full of commonsense, objective and well balanced, though one is not completely convinced of the need for the new terms in place of more familiar ones. Even allowing for condensation of clinical notes for publication, there are times when one finds it difficult to avoid a suspicion of leading questions. It administers a salutory shock to those who have been accustomed to explaining things by means of special agencies. It should be read carefully by all who are tempted to express opinions on this vexed question. It will be welcomed by all who are really trying to understand the problem.

W. J. WHEELER.

THE RHESUS DANGER, Its Medical, Moral and Legal Aspects. By R. N. C. McCurdy (William Heinemann Medical Books Ltd. 1950. Pp. 138. Price 5s.).

"In England and Wales during the year 1947, 664 children under one year of age died because their parents' blood would not mix. During that year, just

over eighteen out of every 1,000 children dying under the age of one year died from this cause. Further, it is likely that some hundreds of children were stillborn and some hundreds of the survivors are mentally defective for the same reason."

With this paragraph the author opens his book and thus puts the danger of the Rh (Rhesus) factor in its proper perspective. The problem has become one that has roused much interest, if not anxiety, among the lay public and the author has succeeded in presenting a complex subject in a lucid and interesting way.

He has not shirked the moral and legal aspects and most readers will agree with the author's views regarding sterilisation, abortion, artificial insemination and divorce. It is time that the medical and lay public appreciated the issues involved in a marriage where the partners are found to have this incompatible blood factor.

In one American state a bill has been proposed to make pre-marital blood examinations obligatory and to forbid marriages between Rh-positive men and Rh-negative women. But would this really be acceptable except in a totalitarian state? Doubtless a solution will be found by the men of science when they have discovered a method of preventing Rh sensitisation. Research is proceeding along these lines and in time the problem will be solved.

The book should be read by all those working in the health services and those of the laiety who wish clarification upon a very complex subject.

W. C. W. NIXON.

MODERN SCHOOL HYGIENE, by R. Gamlin (Nisbet. 1950. Pp. 480. Illus. Price 12s. 6d.)

The Board of Education Memorandum *Health Education in Training Colleges* draws attention to the need of presenting school hygiene in accordance with the modern concept of this subject. Gamlin's book has gone far to meet this requirement, and the appearance of a new edition with fresh and a wide range of helpful illustrations, is welcomed.

The subjects have been well chosen and a student who has taken the care to assimilate the knowledge in the light of the help given by the lecturer and through appropriate visits should be able to co-operate knowledgeably with the visiting school doctor and nurse. In recent years at National Conferences and elsewhere, the place of the teacher in relation to the School Health Service has been repeatedly stressed.

The early recognition and welfare of the handicapped pupil is well dealt with. The latest special educational treatment for certain categories has been described with care and it is good that the student should know even in his early days that education according to age, ability and aptitude is designed for all children. In this connection, since the book is so widely used, it is well to correct the statement that Birmingham has a residential school for children suffering from cerebral palsy. There is an excellent day school there.

One criticism seems to be called for. The attempt at schematisation of the mind in the section on "Mental Deficiency" is suggestive of the old 'faculty' psychology and fixes an image which would tend to give a too concrete and fixed concept of the mind, which is essentially fluid and relative.

The book is indicative of the wide knowledge and ability of a School Medical Officer of a large city and contains the fruits of his experience at the end of his official career. It is much hoped that he will be long spared to bring out many more editions incorporating even still greater advances in the care of children.

H. M. COHEN.

MOTHER AND CHILD CARE IN THE U.S.S.R., by O. P. Nogina (Foreign Languages Publishing House, Moscow. Distributed by Collet's Foreign Department, 67 Gt. Russell Street, W.C.1. 1950. Pp. 85. Illus. Price 9d.).

Mother and Child Care in the U.S.S.R. is a record of the achievements which have taken place in this field during the past thirty years. The pamphlet would appear to be an English translation of the Russian original, which was no doubt prepared for the information of readers within the country. It seems difficult to believe that, had it been written primarily for foreign consumption, the writer would have been so ingenuous as to include sentences such as the following:—

> "During the war, the capitalists of America made thousands of millions of dollars profit out of the labour of millions of women; but when the war ended, these women were thrown out of factories and doomed to unemployment, poverty and starvation. Things are no better in Marshallised Britain, where, as in the United States, the government obeys the will of the capitalist class and shows no interest in the welfare of mothers and children."

The only effect of such blatant untruths on the foreign reader is to make one question the truthfulness of the account given of the maternity and child welfare services in the U.S.S.R. This is a pity, for one would have liked to believe that maternity and child welfare in that country was at least keeping pace with what is happening in the western world.

Undoubtedly the U.S.S.R. were faced with a herculean task, and there is no doubt that they have made great strides in the care of women and children.

It is stated that no less than 50 per cent. of the infants are cared for in nurseries and that the staff ratio is two staff to fifteen or twenty children. By comparison the staffing of nurseries in this country is lavish and hardly justifies the statement that "In capitalist countries there are few nurseries even today, and they are maintained by charitable or religious organisations".

Great emphasis is laid on the absolute equality of women with men in every branch of economy, culture or science.

The care of mothers in the more backward areas of the world is contrasted with their happy lot in the U.S.S.R. One would like to think that the U.S.S.R. were prepared to play their full part with other western countries through the World Health Organisation in rectifying this state of affairs.

JEAN M. MACKINTOSH.

CLEANER FOOD AND HOW TO GET IT, by Morley Parry and Ronald Wentworth. (The Institute of Public Administration. 1950. Pp. 16. Price 1s. 2d. post free, 15s. for 20 copies, 65s. for 100.)

Morley Parry and Ronald Wentworth have written a much needed booklet on Food Hygiene.

It consists of an account of the present problem, the kinds and habits of germs and how they may be defeated. The essentials of the law relating to food are summarised and procedure in other countries reviewed. It concludes with suggestions of what can be done personally and through public bodies such as Food Guilds. An appendix summarises the organizations from which help may be obtained.

This excellent little booklet covers in simple and balanced language, most of the information of which the public and the food trade need to be aware.

For details of the technique of refrigeration, sterilisation, washing-up etc., more technical publications should be consulted; a list of these would be a welcome addition.

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Editor: Robert Sutherland, M.D., D.P.H.

PRINTED IN GREAT BRITAIN BY FISHER, KNIGHT & CO., LTD., ST. ALBANS